

CLAIMS:

1. A method of determining the relative position of a mobile communication terminal in a cellular network to an object, comprising the steps of:
- 5     a) the mobile communication terminal determining its geographical position through cell identification or a more sophisticated cellular network based positioning method,
- 10    b) the mobile communication terminal requesting the geographical position of an object via a cellular network based connection, either directly from said object if the object is capable of communicating with the mobile communication terminal and is aware of its geographical position or
- 15    from a server having the geographical position of said object stored thereon,
- 20    c) said object or said server, sending the requested geographical location via a cellular network based connection to the mobile communication terminal in response to said request, and
- 25    d) said mobile communication terminal comparing its own geographical position with the received geographical position and determining the distance and direction to the received geographical position.
2. A method according to claim 1, in which said mobile communication terminal uses, when available, E-OTD instead of cell identification for determining its geographical position.
- 30    3. A method according to claim 1 or 2, in which said request and/or geographical position are sent in a text message or a multimedia message, preferably an SMS, MMS,
- 35    WAP or XHTML message.

4. A method according to any of claims 1 to 3, in which object or said terminal includes accuracy information of the sent geographical position.
- 5 5. A method according to claim 4, in which said mobile communication terminal determines the accuracy of said determined distance and direction.
- 10 6. A method according to any of claims 1 to 5, further comprising the step of prompting for user acceptance before said object replies a request to send its geographical position.
- 15 7. A mobile communication terminal for use in a cellular network, comprising means for receiving a geographical location, means for determining the geographical position of the mobile communication terminal, and means for calculating the distance between said received geographical location and the geographical position of  
20 the mobile communication terminal.
- 25 8. A mobile communication terminal according to claim 7, further comprising means for determining in which direction the received direction geographical location is relative to the geographical position of the mobile communication terminal.
- 30 9. A mobile communication terminal according to claim 7 or P2, further comprising means to display geographical positions as geographical coordinates.
- 35 10. A mobile communication terminal according to any of claims 7 to 9, further comprising means to attach geographical position information to entries in an address book or phonebook stored on the mobile communication terminal.

11. A method of searching persons that are associated with a mobile communication terminal, comprising the steps of:

- 5       - registering characteristics of said persons on a server in a searchable format;
- monitoring the geographical position of said mobile terminals in a cellular network;
- said first mobile communication terminal  
10       requesting said server to list persons matching particular characteristics and located within a given geographical area, preferably within or outside a given range from the mobile communication terminal; and
- 15       - said server providing a list with matching persons to said first mobile communication terminals.

12. A method according to claim 11, in which said first mobile communication terminal includes its own  
20       geographical position when requesting said server to list persons.

13. A method according to claim 11 or 12, in which said mobile communication terminals send their geographical  
25       position in a timed manner to said server.

14. A method according to any of claims 11 to 13, in which said first mobile communication terminal sends said request to the server as a text message, preferably an  
30       SMS, MMS, WAP or XHTML message.

15. A method according to any of claims 11 to 14, in which said server sends said list of matching persons to the first mobile communication terminal as a text  
35       message, preferably an SMS, MMS, WAP or XHTML message.

16. A method according to any of claims 11 to 14, in which said characteristics comprise hobbies, interests, age, gender, profession, favorites, contact information, address, education, association, and other personal data.

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17. A method according to any of claims 11 to 16, in which the subscription number of the mobile communication terminal of said matching persons is included in said list.

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18. A method according to any of claims 11 to 17, in which the geographical of said mobile communication terminals is determined via E-OTD when available and otherwise via cell identification.

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19. A method of distributing advertisement messages in a cellular network, comprising the steps of:

- providing an advertisement database containing location targeted advertisement messages connected to said cellular network;
- providing a geographical position server for mobile communication terminals in said cellular network that provides said mobile communication terminals with their geographical position upon request; and
- upon providing a geographical position to a mobile communication terminal said server consults said advertisement database to determine if a location targeted advertisement should be delivered to the mobile communication terminal; and
- said server delivering a location dependent advertisement message to said mobile communication terminal if so indicated by said advertisement database.

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20. A method according to claim 19, in which each advertisement is assigned a geographical scope, and an advertisement is delivered to said mobile communication terminal when said mobile communication terminal is  
5 located within the geographical scope of said advertisement.

21. A method according to claim 19 or 20, in which the geographical position of the mobile communication  
10 terminals is determined via E-OTD when available and otherwise via cell identification.

22. A method according to any of claims 19 to 21, in which said advertisement message and said geographical  
15 position information are sent as a multimedia message such as an MMS or WAP message or as a text message such as an SMS message.

23. A method according to any of claims 19 to 22, in  
20 which said advertisement database is provided with means to retrieve a marketing profile associated with a mobile communication terminal or the registered user of the mobile communication terminal.

25 24. A mobile communication terminal for use in a cellular network, comprising means to determine the geographical position of the mobile terminal via interaction with said cellular network, and means for tracking changes in graphical position.

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25. A mobile communication terminal according to claim 24, further comprising means for determining a distance traveled by said mobile communication terminal.

26. A mobile communication terminal according to claim 24 or 25, further comprising means for determining a direction traveled by said mobile communication terminal.

5 27. A mobile communication terminal according to any of claims 24 to 26, further comprising means to reset and/or start said means for tracking changes in graphical position.

10 28. A mobile communication terminal according to any of claims 24 to 27, further comprising a display and means for showing the geographical location coordinates.

29. A mobile communication terminal according to any of  
15 claims 24 to 28, further comprising a display and means for showing the direction of travel.

30. A mobile communication terminal according to any of claims 24 to 29, further comprising a display and means  
20 for showing the traveled path as a two dimensional graphical representation, preferably on a map.

31. A mobile communication terminal according to any of claims 24 to 30, further comprising means to determine  
25 the velocity at which the mobile terminal is moving.

32. A mobile communication terminal according to any of claims 24 to 31, further comprising means to determine the accumulated traveled distance.

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33. A mobile communication terminal according to any of claims 24 to 32, in which the geographical position of the communication terminal is determined via E-OTD when available and otherwise via cell identification.

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34. A mobile communication terminal according to any of claims 24 to 33, in which the geographical position of the communication terminal at selected waypoints is sent to a server connected to the cellular network, for later  
5 retrieval and display on a geographical map on another terminal, preferably a terminal with a high resolution display and relatively high graphics processing power.

35. A mobile communication terminal according to any of  
10 claims 24 to 34, in which a predetermined route can be stored, preferably as waypoints, said terminal preferable further comprising means for tracking the actual route followed by said terminal and compare the actual route with the predetermined route.

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36. A mobile communication terminal according to claim 35, further comprising means to send a message to a server and/or to notify the user of the terminal when the actual route of the mobile communication terminal matches  
20 the predetermined route.

37. A mobile communication terminal according to claim 36, further comprising means to send a message to a server and/or to notify the user of the terminal when the  
25 actual route of the mobile communication terminal does not match the predetermined route.

38. A mobile communication terminal according to any of claims 26 to 37, further comprising means for displaying  
30 the horizontal north relative to the last traveling direction, whereby the horizontal north preferably is displayed by a arrow pointing north when the display is oriented horizontally and the top of the display is directed in the last traveling direction.

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39. A mobile communication terminal according to claim 38, in which the actual position of the sun relative to the horizontal north is shown in the display.

5 40. A mobile communication terminal according to any of claims 24 to 39, further comprising means for displaying the distance and direction to the a waypoint of the route, such as the start point.

10 41. A method of distributing location information within a group of mobile communication terminals in a cellular network, comprising the steps of:

- 15 - defining a group comprising at least two mobile communication terminals of which the geographical position can be determined via interaction between the mobile terminal and the cellular network;
- determining the geographical positions of all the communication terminals of the group, and
- 20 - sending communicating the determined geographical positions to all the terminals of the group.

42. A method according to claim 41, in which a sever connected to the cellular network keeps track of the geographical position of the mobile communication  
25 terminals in the group, whereby the server sends messages containing the geographical position data of the members of the group to each member of the group.

43. A method according to claim 42, in which said server  
30 is provided with means for determining the actual speed and/or direction of the mobile communication terminals of the group, and further comprising the step of the server including the velocity and/or direction of movement data of the members of the group in the messages.

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44. A method according to any claim 41 to 43, in which the mobile terminals of the group further comprise- or are connected to means for determining their altitude and/or their vertical speed.

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45. A method according to claim 44 in which said means for determining the altitude and/or the vertical speed comprise a barometric altimeter and/or a GPS unit, either integrated or connected to the mobile communication  
10 terminal, whereby the connection could be wireless or cabled.

46. A method according to claim 45, wherein at least one of said mobile communication terminals broadcasts its  
15 geographical position to the other terminals of the group.

47. A method according to any of claims 41 to 46, in which the mobile terminals comprise means to determine  
20 and display their distance to the other mobile communication terminals of the group.

48. A mobile communication terminal for use in a cellular network, comprising:

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- a display;
- means for receiving data containing one ore more
- geographical locations via said cellular network;
- means for determining the geographical position of the mobile communication terminal itself;
- 30 - means for displaying said received geographical locations and the geographical position of the mobile communication terminal itself on said display in a rectangular two-dimensional coordinate system.

35 49. A mobile communication terminal according to claim 48, in which the own geographical position of the mobile

communication terminal itself forms the center of the coordinate system.

50. A mobile communication terminal according to claim R1 or R2, further comprising means for determining the maximum scale for the coordinate system in which all received geographical positions can still be displayed on the display.

51. A mobile communication terminal according to any of claims 48 to 50, further comprising means for assigning a different symbol to each of the received geographical positions, and means for using these symbols for displaying the geographical positions in said coordinate system.

52. A mobile communication terminal according to any of claims 48 to 51, further comprising means for sorting the received geographical locations into categories each having different symbol assigned thereto and means for using these symbols for displaying the geographical positions in said coordinate system.

53. A method of displaying geographical positions on a mobile communication terminal for use in a communication network, comprising the steps of:  
receiving one or more geographical positions of other mobile terminals;  
displaying the received geographical positions in a two dimensional rectangular coordinate system on the display of said mobile terminal with the geographical position of said mobile terminal forming the center of the coordinate system.

54. A Method according to claim 53, further comprising the step of limiting the maximum number of geographical

positions displayed at one time to a given number, said given number preferably being five.

55. A method according claim 53 or 54, in which a number  
5 is assigned to each received geographical position for display therewith.

56. A method according to any of claims 53 to 55 further  
10 comprising the step of determining the maximum scale for said coordinate system in which all geographical positions fit within the display, and preferably using the determined scale for displaying the geographical positions.

15 57. A method according to claim 56, further including the step of displaying the scale of the coordinate system on the display, and/or displaying the axes of the coordinate system, preferably at least one of the axes being provided with numeric values corresponding to the  
20 distance along the axis.

58. A method according to any of claims 53 to 57, further comprising the steps of sorting the received geographical coordinates in categories each having a different symbol  
25 associated thereto, and using these symbols for showing the geographical positions on the display.

59. A method according to any of claims 53 to 58, further comprising the steps of assigning different symbols to  
30 each of the received geographical positions, and using these symbols for showing the geographical positions on the display.

60. A method according to any of claims 53 to 59, in  
35 which the geographical positions of the other terminals

are sent to the mobile communication terminal from a server connected to said communication network.

61. A method according to claim 54, in which the  
5 positions of the other terminals are sent by said server  
in a single message.